

THE NATURE OF WAR THEORY

BY

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ABSTRACT

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Today's advances in evolutionary biology are unifying competing theories of natural selection and serve as a timely call for a similar unification of competing theories of war. This paper explores the relationship between war and natural selection by first examining war's biological origins, and then placing them within a multidisciplinary framework called the Nature of War Theory.

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THE NATURE OF WAR THEORY

“If you want a new idea, look in an old book.”¹ This anonymous quote serves as both introduction and acknowledgement to countless scholars who have written volumes of literature dedicated to the study of war and, in doing so, limited the possibility of exploring truly revolutionary ideas. Indeed, somewhere contained within all of the physical as well as digital libraries of the world, there almost certainly lies a number of works dedicated to explaining the biological underpinnings of war. Bearing this in mind, this paper explores and advances a new idea for how to apply Charles Darwin’s *Theory of Natural Selection* to better understand the biological basis of war by leveraging the “old book,” Quincy Wright’s *A Study of War*. Wright’s *A Study of War* is a massive, comprehensive, and multi-disciplinary effort initially published during the Progressive Era following World War I and ultimately completed in 1942.

In the early chapters of *A Study of War*, Wright offers the concept of *animal war* – a classic framework of natural selection based on individual-level adaptation as the biological driver of war.² But evolutionary biology proved an elusive and controversial science in the mid-twentieth century and much of Wright’s research relating to natural selection was discounted. However, within the last 20 years, significant advances in evolutionary biology and genetics present *Multilevel Selection Theory* a modern framework of natural selection based on individual-level *and* group-level adaptation, compels a reexamination of Wright’s discredited theories.³ Recognizing the paradoxical duality of modern natural selection, this paper improves upon Wright’s classic work by proposing a corresponding paradoxical duality of war that is in line with multilevel selection. In order to align the terms individual-level and group-level adaptation into a

theory of war based on multilevel selection, the terms *individualistic war* and *altruistic war* are introduced.

When undertaken by humans, individualistic war is familiar to most students of military history. It is typified by conflict originating from the desires of one, or a small group of individuals, who create a military force to “give it up,” as Thucydides wrote in his *History of the Peloponnesian Wars*, “under the pressure of three of the strongest motives, fear, honor, and interest.”⁴ Individualistic wars are characterized by the presence of an elite class, a centralized government, sufficient wealth, and traditional military forces. Carl von Clausewitz magnificently characterized the essence of individualistic war when he wrote, “War is merely the continuation of policy by other means.”⁵

Altruistic war is less studied compared to individualistic war. It centers on the idea that war stems from naturally occurring evolutionary adaptations that provide a survival or reproductive benefit to a social species, including our species, *Homo sapiens*. Altruistic war, when waged by modern men and women, is characterized by the absence of an elite class, a decentralized government, frugality, and irregular forces. David Galula, in his seminal work *Counterinsurgency Warfare: Theory and Practice*, offers conditions both favorable and unfavorable for altruistic war from the point of view of both the individualistic group and the altruistic group and continually reminds readers that the aim of the war is to gain the support of the population rather than control of territory.⁶

Prior to continuing, two points of clarification are in order. First, this paper describes a group as any coherent social group, population, or species sharing a

common geographical area. These may include clans, tribes, swarms, prides, and nation-states. Second, while it is important not to discount nuclear war and terrorist strikes, insights regarding these events are reserved for the conclusion of the paper because they illustrate extreme examples of the general thesis and not its central points.

If the basic concepts of individualistic and altruistic war seem intuitively familiar, it is because they appear to align with *traditional* and *irregular* war, suggesting a corresponding relationship between the theory of natural selection and theories of war. Although this paper would lose little substance were it to use the terms traditional and irregular as sub-classifications of war, the use of individualistic and altruistic war serve well to amplify war's link to evolutionary biology and will lessen confusion as the relationship between the phenomena are explored.

The abandonment of one accepted terminology in favor of another is one of many challenges that characterize multi-disciplinary research. Interpreting the shared sociological and biological causes of war is no exception. In the study of war, many challenges arise merely by the fact that most in the traditional sciences draw a large distinction between themselves and those in the social sciences, and vice-versa. However, the reasons behind these distinctions seem more attributable to an absence of common ground between these scientific camps.

To help bridge these differences and create a conceptual common ground, it is essential to identify the overarching framework that connects the traditional physical and natural sciences with the social sciences. If one accepts the study of human behavior as a science, then one must equally accept that it falls within one of the widely accepted

hierarchies of science. In his writings, *The Course of Positive Philosophy*, 1830-1842, and *A General View of Positivism*, 1848, Auguste Comte presents the *Hierarchy of Science* that is in general use today. Mathematics is at the top of Comte's hierarchy of sciences, followed by physics, chemistry, biology, and finally, sociology. In Comte's hierarchy, the complete understanding of a given science depends on advances in its predecessors. Thus, a gap in the hierarchy results in an incomplete understanding of the latter sciences. In what can be seen as a significant oversight in the historical development of theories of war, scholars lacked the scientific insight to fully integrate theoretical biology into their writings prior to Wright's efforts in 1926.

With an accusatory finger now extended, it is fair to come to the defense of Carl von Clausewitz, Henri Jomini, and the other 19th Century scholars of war who may have been familiar with Comte's writings. What these scholars of war, as well as Comte, could not have known was that roughly at the same time Clausewitz was completing his initial draft of *On War*, the young naturalist Charles Darwin had embarked on the *HMS Beagle* for a five-year scientific voyage that would last from 1831 to 1836. Darwin would later publish two groundbreaking works, *On the Origin of Species* and *The Descent of Man* in 1859 and 1871, respectively, which would radically change the course of the human understanding of biology. With the exception of Quincy Wright and J.F.C. Fuller, the great thinkers on war were never afforded the chance to consider the inclusion of Darwin's revolutionary theories in their works.

To give credit to Fuller, the insightful soldier-scientist, it seems fitting to open the next section with a phrase from his work by offering that in order to understand war, it is necessary to "dissect the corpse of war."⁷ In doing so, four dissections will demonstrate

that biology comprises war's missing link in Comte's hierarchy and may serve as the much sought after common ground for future collaboration among traditional and social scientists.

Dissecting the Corpse of War

The first dissection reveals how the modern theories of war, namely, *On War* by Clausewitz, *The Art of War* by Sun Tzu, and *The Art of War* by Henri-Antoine Jomini magnificently describe warfare, yet inadequately define war. Sun Tzu offers that war is a factor of "morale influence."⁸ Clausewitz does not trouble the reader by "expounding on the pedantic, literary definition of war" beyond calling it an "armed conflict between discrete and recognized states."⁹ Jomini does not attempt to define war in his work but moves directly to defining the art of war.¹⁰ Even the titles of these seminal works on war approach the topic obliquely (e.g., *On War* and *The Art of War*) suggesting all three considered war to be a describable, yet indefinable phenomenon.

The second dissection of war reveals that failing to define a phenomenon before presenting an explanatory theory was not unique to the great theorists of war. For example, in 1687, in his *Mathematical Principles of Natural Philosophy*, Sir Isaac Newton presented his *Law of Universal Gravitation* without providing a definition for gravity. Gravity simply existed and Newton provided a set of laws to explain how it worked; its definition being superfluous to that end. War, like gravity, also simply existed.

In order to understand how a poorly defined phenomenon inhibits the development of its respective theory, the third dissection of war requires a return to the history of the theory of gravity in order to demonstrate its significance. In 1915, some

145 years following the publication of Newton's *Law of Universal Gravitation*, Albert Einstein published his *General Theory of Relativity*. Whereas Newton explained how gravity worked, Einstein defined the phenomenon itself. Gravity was, in a sense, the curving of both time and space in response to the proximity of a mass. With one elegant theory, Einstein revolutionized how humans view not only gravity, but energy, light, and time as well.

If Einstein's theory of relativity radically advanced the understanding of gravity, where should one search to find clues to advance the theory of war? Perhaps some of these clues may be found in a fourth dissection of the current theories of war by carefully scrutinizing the following italicized words taken from popular theories of war. For example, in the fifth century, B.C. Sun Tzu wrote that war is "a matter of *vital* importance to the State; the province of *life or death*; the road to *survival* or *ruin*."¹¹ In 1651, the famous English philosopher Thomas Hobbes wrote that wars are "the *natural consequence of individual* and societal acquisitive appetites."¹² Clausewitz offered, "As a total phenomenon war's dominant tendencies always make it a paradoxical trinity – composed of *primordial violence*, hatred, and enmity, which are to be regarded as a *blind natural force*."¹³ Additionally, Fuller wrote, "We thus have three fundamental *biological* causes of war: security of *life* based on the *instinct* of pugnacity; maintenance of *life* based on the *instinct* of hunger; and continuity of *life* based on the *instinct* of sex."¹⁴

Thus, the fourth dissection reveals that none of the great scholars of war endeavored to expound upon the italicized words or phrases in their respective quotations. Since each of these words or phrases have similar counterparts with those

used by scientists when describing evolutionary biology, it is logical to assume biology was not fully understood during the time of the seminal writings. Therefore, are these the missing academic links between the traditional and social sciences required to unify competing theories of war? If so, what are biology's disciplines and sub-disciplines that form war's missing link? This is a fundamental question and in order to construct a unified theory of war, we must return to Wright's discredited effort to forge a biological link between the traditional and sociological theories of war.

Evolutionary Biology: War's Missing Link

Because biological arguments for explaining war are fundamentally theoretical arguments, to fully understand war one must first understand the basics of natural selection. Natural selection is the tendency of those individuals and groups better suited to their environment to survive and perpetuate their species, leading to changes in the genetic makeup of the species and, eventually, to the origin of a new species.¹⁵ It is the underlying mechanism that drives evolution. An often used example of natural selection is the finches of the Galapagos Islands. Simply, those birds, adept at obtaining seeds or those able to get new kinds of foods, were the ones that survived and reproduced. A finch with a genetic mutation resulting in a slightly longer and thinner bill, for example, could reach food that others could not. Over time, these longer billed birds and their descendants gain in numbers at the expense of other finch varieties as the favorable mutation passed from generation to generation.¹⁶

The finches of the Galapagos Islands are an example of evolution at the individual-level, a process widely understood by Wright and his colleagues when they published the first edition of *A Study of War*. However, unavailable to Wright and his

contemporaries were the scientific advances of the late 20th and early 21st Century including sociobiology and genetics. These new scientific sub-disciplines would serve to explain many of the contradictions Wright's theories faced upon publication.

Sociobiology is the scientific study of the biological basis behind the social behavior of animals.¹⁷ It contends that social behavior is often genetically determined and that the genes governing this behavior are subject to natural selection. Sociobiology posits that an animal will normally behave in ways that will increase the survival of its genes in the gene pool either by increasing its own reproductive success or the reproductive success of a group of individuals in the same species with similar genes. The positive reproductive results from these behaviors are called *fitness benefits*. Sociobiologists seek to explain animal behaviors by using natural selection and genetics to identify individual-level and group-level fitness benefits. Modern sociobiologists note that fitness benefits are gained through adaptations that occur at two levels: individual and group.

At the individual-level, every organism in a species has a genotype, which is its fundamental genetic makeup with minor changes, referred to as mutations, occurring from time to time. An individual's genotype is a combination of its parents' specific genotypes. Although remarkably similar, the genotypes of the organism's parents are not exactly the same and new genotypes are continually forming in a population. These genotypes are passed down generationally and are considered to be hereditary. Slight variations from the group's genotype can, over the course of time, slowly result in new behaviors and provide advantages, or disadvantages to an organism.

Natural selection also occurs at the group-level. The basic premise of group-level selection is that groups succeed when individuals place themselves at a distinct fitness disadvantage, like going to war, for the good of the group. In order to understand this naturally occurring social phenomenon, the concept of *altruism* must be presented in detail.

Altruism is a behavior that benefits another individual or group while being apparently detrimental to the individual performing the act. Research since the 1960s provides sufficient evidence for altruistic behavior among numerous social species, with many of these behaviors being recognizably warlike. At the microscopic-level, altruistic behavior is seen in *Polyembryonic hymenopterous* parasites. In this case, a number of larvae are deposited into a host. These first sterile larvae, called “defender morphs,” protect their siblings by combating and eliminating invading parasites that would threaten the normal larvae. The sterile defenders and their normal siblings all come from the same egg, thus are genetically identical. The developmental and behavioral differences must therefore come from different patterns of gene expression in the defender and normal forms resulting in the defenders behaving purely in an altruistic manner; that is to say, they exist, fight, and, die purely for the good of the group.¹⁸

Female lions also provide convincing evidence for violent altruistic behavior by defending the pride against attackers. However, although all female lions share a common resource, territory, only a proportion pay the full cost of territorial defense. If too few females accept the responsibilities for its defense, the territory of the pride is at risk.¹⁹

As the previous paragraph implies, if enough females behave altruistically by fighting to defend the range, their territory is maintained. However, their collective effort is vulnerable to abuse by the other females in the pride that choose not to defend the territory. The unanswered question is why would female lions place themselves and their genotype at risk by defending the range when safely declining to defend it is an option? Herein resides the great contradiction that discredited Wright's and other notable theories based on individual-level selection.

In order to explain the paradox of competing individual-level and group-level selection theories, today's leading sociobiologists, David Sloan Wilson and Edward O. Wilson contend, under multilevel selection, that evolution is happening at all levels simultaneously.²⁰ This is critically important for the purposes of this paper because it reconciles the differences found in the biological origins of war as written by Wright and his colleagues.

The complex nature of multilevel selection is appreciated by examining the behavior of *Pseudoregma sudanica*, a social aphid species that maintains a symbiotic defense alliance with various ant species. The ants tend to the needs of the aphids and in return are rewarded by being allowed to harvest honeydew, a sweet aphid byproduct that the ants use as food.²¹ When the number of tending ants is high, the aphids need not produce as many soldier-aphid variants to defend themselves because the ants will defend the aphids from predators. However when the number of tending ants is low, the aphids must produce more soldier-aphid variants at a much higher *biological investment cost*. Without tender ants, soldier-aphid variant production is so high that the group will ultimately fail because too much biological investment is put toward the production of

soldier-aphid variants. The fascinating survival strategy of the aphid group is complex and parallels the balance of military, economic, and diplomatic means practiced by modern nation-states in our own species.

Complex multilevel relationships are also present in baboons - one of the most combative of all primates. Baboons, *Theropithecus gelada*, live in complex male-led societies, forming groups at four levels that are remarkably similar to the traditional military formations of squad, platoon, company, and battalion. At the smallest level, a dominant male baboon will control a harem of females in a unit (squad). A number of these units may organize into a clan (platoon) of baboons. Units and clans can organize into much larger social groupings called a band (company). The baboons within each band coordinate their activities, acting as a cohesive social unit that can organize into a 200 or more member troop (battalion). Their warlike behavior reinforces the idea that multilevel selection is an evolutionary adaptation that sheds light on our own species' predilection to wage war.²²

Having appreciated the recent 21st Century renaissance in natural selection, it is appropriate to reconsider its role as the biological driver that explains warlike behavior within our own species. The next section uses terms derived during this research with attributes taken from both popular theories of war and multilevel selection theory. These terms are *sacrifice ratio*, and the previously introduced individualistic war, and altruistic war.

Evolutionary Wars

Recalling the female lions from the previous section, this paper proposes that the degree of altruistic behavior required for a group to succeed relative to the degree of

individualistic behavior that takes advantage of the group is the sacrifice ratio.²³

Although not as complex as lions, the bacterium *Psuedomonas fluorescens* illustrates aptly the concept of a sacrifice ratio between individualistic and altruistic adaption.

When in liquid, these bacteria can only survive at the surface. In order to float, the group must produce sufficient amounts of an adhesive to form a buoyant mat. Producing the adhesive has a metabolic cost that limits bacterial growth. Non-secreting bacteria are also part of the floating mat, benefiting from their neighbors' costly adhesive production. These free riders reproduce faster; however, when they become too numerous, not enough adhesive is produced and the entire mat disintegrates and sinks beneath the surface killing all of the bacteria.²⁴ Although simple, this illustrates the fragile balance between individualistic and altruistic adaptation in the same group. To Darwin, the concept of altruism was essential for the success of the human species. He knew that without a certain degree of sacrifice by individuals, human groups would also disintegrate and fail.²⁵ This sacrifice ratio between individualistic and altruistic adaptations provides the biologic foundations of warlike behavior as well, and it serves to justify the corresponding terms individualistic and altruistic war.

Individualistic war is violent conflict originating from a primacy of individual-level adaptations over altruistic adaptations within a group and is characterized by a sacrifice ratio favoring individual-level adaptations. It leads to violent behaviors that serve to benefit the individual, or a small group of individuals, like a regime, at the cost of the group. Individualistic war appears common amongst humans, while the literature review revealed no examples of individualistic war within the animal kingdom. In order to prevent social violence, a balance must be struck between individual-level adaptations

and group-level adaptations similar to the balance required by the floating bacteria colonies that prevents disintegration and destruction of the colony

If the degree of individual-level adaptations overcomes the capacity for altruism within a group, the group becomes unsustainable and vulnerable to collapse. The group will have less fitness and be subject to attack from another group with higher fitness. This attacking group utilizes individuals that place themselves at a distinct fitness disadvantage by potentially sacrificing themselves through warlike behavior for the benefit of the group. Thus, it is through altruistic warlike behavior, the group and perhaps the species gains a fitness benefit by expanding its collective genotype while reducing the rival's lesser genotype.

Altruistic war is violent conflict originating from group-level adaptation. It is characterized by a sacrifice ratio whereby group adaptations overcome individual-level adaptations. Altruistic war, common in nature, is an evolutionary mechanism in line with multilevel selection that ensures success of one group over another under certain environmental conditions. In the animal kingdom, it is common for individuals of a social species to place themselves at an individual disadvantage in order to provide a fitness benefit for the group, this being altruistic war. Multilevel selection proposes that altruistic behavior provides distinct fitness benefits for a species.²⁶ Multilevel selection, when applied to a unified theory of war, provides equally compelling evidence that altruistic war also provides a specific fitness benefits.

The recent instability in Egypt provides an excellent example of the sacrifice ratio, individualistic war, and altruistic war. For the purpose of populating the sacrifice ratio, the regime of former President Hosni Mubarak represents individualistic group,

while the anti-government protesters represent the altruistic group. Unlike the floating bacteria, whose sacrifice ratio is simply calculated by comparing the number of adhesive secretors to the number of free riders, human groups are far more complex. However, research groups, such as The Millennium Challenge Corporation, provide useful sources of data. A brief review of their website indicates the Mubarak regime was enjoying an enormous level of individual-level adaption at the cost of the group. Accordingly, Egypt scored poorly among lower middle income countries in terms of corruption, civil liberties, health care, and education, just to name a few.²⁷ Not surprisingly, there were no indications of altruistic adaptation among the people including voluntary service to the government, military, or larger service organizations.²⁸

When this numerical data is placed within the context of a sacrifice ratio, it demonstrates an overabundance of individual-level adaptations being taken within the group. In the recent Egyptian uprising, the altruists were willing to sacrifice their personal fitness for the good of the group and the demonstrations commenced. Although violent, the events in Egypt did not lead to war for a number of reasons, but in great part because neither the Mubarak Regime, nor the Egyptian Army, being for the most part conscripts, reached the point on the sacrifice ratio where they were willing to place their personal fitness at risk. The regime abdicated on February 11, 2011 because that was the behavior that best benefited the individual interests of Mubarak and the regime.

The events currently unfolding in Libya are similar to those seen in Egypt. Regrettably, at the time of the submission of this paper, the regime of Muammar al-Gaddafi has met Libya's altruistic population at the sacrifice ratio and this has resulted

in a full-scale civil war with the individualistic force using traditional warfare and the altruistic force using irregular warfare. History will record if Libya will be able to self-correct and reduce the degree of individual-level adaptation as seen with Egypt, or if stability will be restored through extreme individualistic-level violence.

The Nature of War Theory

In order to explain the unfolding of the events in Egypt, Libya, and similar violent conflicts, this paper proposes a formal Nature of War Theory. As its name implies, this theory offers evolutionary biology as the missing link between traditional science and social science that unifies popular theories of war. It identifies natural selection, specifically multilevel selection, as the *causa bellum*. It defines war as violent adaptive behavior between two or more social groups, originating from natural selection, sustained by fitness benefits for the species, and occurring simultaneously at multiple physiological and sociological levels within an environment characterized by limited resources. In humans, it serves to explain the violent response to environmental threats and opportunities to fitness by means of simultaneous individual-level and group-level, or altruistic, adaptations. It correspondingly divides war into two types: individualistic and altruistic. The former provides little to no benefit to human society, just as it has been shown to provide no benefit to other societal species in the animal kingdom and, in fact, has not been observed to exist among these other species. The latter is a necessary evolutionary behavior that yields discrete but significant fitness benefits to the group.

In order to appreciate the utility of the theory, it is imperative to examine war not as a single event, but rather as two or more separate events corresponding to the

behaviors of the dueling groups. As seen in the previous example, the Libyan uprising is, in truth, two wars, with one being individualistic and the other altruistic. As such, it makes understanding the perspective of both sides critical to framing the nature of the conflict. Because the two are rooted in two very distinct processes described by natural selection, it is unwise to endeavor to apply any existing single theory of war to describe the complex interplay between the biologically distinct phenomena.

If one recognizes that the writings of Clausewitz serve well to capture individualistic war and the writings of Galula serve well to capture altruistic war, it is therefore foolish to use either one, or any other single theory of war for that matter, to explain a war grounded in two fundamentally different evolutionary processes. The Nature of War theory remedies this by expanding the aperture of analysis to explore both types of evolutionary war, individualistic and altruistic, simultaneously. In doing so, it provides a holistic method that endeavors to provide a degree of symmetry to seemingly asymmetric tactics, perspectives, leadership styles, and objectives.

Strategic Insights on the Nature of War

In light of its theoretical foundation and multi-disciplinary approach, this paper closes with a number of strategic insights, rather than formal conclusions. These insights represent avenues for future research and multidisciplinary articles currently in draft by the author.

The first insight is that a group unwilling to wage war in order to gain a fitness benefit must ensure they are prepared to defend themselves against rival groups that will. This insight may be manifesting itself by the present increase in threats from non-state actors such as Al Qaeda and other fringe and extremist groups. Natural selection

suggests that a group that cannot succeed in a resource-constrained environment must adapt or become extinct. These groups are literally evolving in order to compete within the contemporary global environment that recognizes the Westphalian-type nation-state as a successful group.²⁹ In order to compete, it is therefore foreseeable that in the not-so-distant future, the evolution of human social groups will transcend nation-state boundaries in order to better compete for limited resources. It is a simple choice grounded in natural selection – adapt or become extinct.

The next insight suggests *individual power* is a leader's ability to co-opt violent altruistic behavior of a group not for a group-level fitness benefit, but rather for an individual-level fitness benefit. When this is done for the purposes of individual-level adaptation and by using force, the result is individualistic war. Clausewitz noted this phenomenon with what he called "the passions of the peoples" and how these passions were likely to play an important role in the conduct of war.³⁰ Additionally, in what may be considered one of the most notable examples of invoking the passion of the people, Pericles, in his funeral oration, both honors the fallen Athenians, and places the nation on a path to war with his words, "So died these men as becomes Athenians. You, their survivors, must determine to have as unaltering a resolution in the field, though you may pray that it may have a happier outcome."³¹ In his writings, Thucydides offers a cautionary lesson that Pericles' intentions were more in line with individualistic empire expansion than with true altruism, a contention that, as supported by the Nature of War Theory, ultimately led to the social collapse of the Athenian Empire.³²

Conversely, *altruistic power* is a leader's ability to invoke violent altruistic behavior for the good of the group. As previously offered, altruistic behaviors are

fundamentally different than individualistic behaviors – a point that serves well to explain why the writings of Galula and other irregular warfare scholars better align with altruistic war than those of their traditional counterparts. It also serves to underscore the importance of applying modern counterinsurgency doctrine as captured in Army's Counterinsurgency Field Manual by emphasizing the need to demonstrate corresponding altruism from an army toward an individualistically threatened populace.³³ Failure to apply counterinsurgency doctrine while waging altruistic war would be as counterproductive as failing to apply traditional doctrine when waging individualistic war.

A related insight is that insurgencies tend to be altruistic when the population does not support the minority government and counterinsurgencies tend to be individualistic when the counterinsurgents are defending a minority government. To fully understand this insight, it is essential to separate the desire to assign right and wrong, or good and evil from the concepts of individualistic and altruistic behavior. If behavior is rooted in evolutionary processes, it is essential to recognize that evolution does not happen for a reason, it merely provides fitness benefits to those who better adapt. Bearing this in mind, the Nature of War Theory suggests that the key question prior to going to war is not whether our enemy is good or evil, but rather if our group can adapt within an environment or not in order to influence the behaviors of the indigenous groups. In his later years, former Secretary of Defense Robert McNamara understood the challenge in waging an individualistic war against an altruistic group when, in his 1995 retrospective work, he wrote, "We underestimated the power of nationalism to motivate a people to fight and die for their beliefs and values – and we continue to do so in many parts of the world today."³⁴

Related to the previous insight, specifically McNamara's final caution, the Nature of War Theory offers the necessity of understanding the existing sociological balances present among indigenous groups that are disrupted by the mere presence of a new force in the theater of operations. If, like in Afghanistan, a force enters a region initially under the auspices of counter-terrorism against one group, such as Al Qaeda, its mere presence may inadvertently threaten another group, such as the Taliban, and invoke altruistic warlike behavior. This serves as a basis to explain how a military operation with specific objectives against a well-defined group can transform itself into an unfamiliar battlefield characterized of unstable alliances and disparate enemy forces. Thus, as we continue to pursue Al Qaeda to other states and ungoverned regions, our strategy should be to first promote non-violent altruistic behavior among indigenous groups that shuns terrorists prior to disrupting the balance of a region by inserting a new group to conduct counter-terrorism operations.

Individualistic wars against altruistic forces are winnable, but tend to be at a high cost in lives and treasure. It is arguable that Secretary of Defense Robert Gates recognized this insight in his February 25, 2011, speech to the Corps of Cadets at West Point when he lamented, "In my opinion, any future defense secretary who advises the President to again send a big American land army into Asia or the Middle East or Africa should 'have his head examined,' as General MacArthur so delicately put it."³⁵ However, when the case for such a war is unavoidable, it is possible to win the altruism of a group, but doing so is, as T.E. Lawrence wrote, "slow and messy, like eating soup with a knife."³⁶

Whether avoidable or not, Lawrence's "soup" is very expensive and only wealthy nation-states can afford to continually enter into such unsustainable endeavors. In natural selection, sustainability is critical to maintaining the fitness of a group and in a world with declining resources, this looms as an ominous insight that must be addressed. In order to avoid a *Tragedy of the Commons*, on a global scale, there will require corresponding global adaptation to ensure all groups succeed equitably.³⁷ Failure to do so will lead to increased individual-level adaptations where individuals cease to act altruistically. Paul Kennedy, in his book *The Rise and Fall of Great Empires*, captures this insight from a socio-economic vantage point when he writes, "The triumph of any one great power in this period, or the collapse of another, has usually been the consequence of lengthy fighting by its armed forces."³⁸

Natural selection offers that, as the frequency and intensity of individual-level adaption increases, a nation-state will begin its decline unless corrected through altruistic behavior. Edward Gibbon in his landmark work, *The Decline and Fall of the Roman Empire* makes this point by noting that when Rome's focus became more individualistic than altruistic behavior, they started on a 500-year path of decline characterized by "the sanguinary quarrels of the nobles and the people."³⁹ Indeed, Gibbon reserves this, the internal hostilities of the Romans themselves, as his fifth and final point to explain their fall.⁴⁰

If not corrected, the sacrifice ratio will be reached, which will result in individualistic war. History supports this supposition by recounting that declining nation-states are prone to strike others preemptively in order to forcefully adapt while they still have the ability to do so.⁴¹

Technology offers another insight that favors individual-level adaptation by means of requiring fewer altruists to engage in direct combat. Technology, thus, masks the true sacrifice ratio, which may lead to a false acceptance of an individualistic war by a nation-state due to its leader's inability to recognize a lack of altruistic support. Furthermore, technology removes the soldier from the fight, which further reduces the number of altruists required for war. The technology insight also suggests that full scale nuclear war is unlikely because it provides no fitness benefit for the group. This is why "Mutually Assured Destruction" was an effective Cold War deterrence strategy and why nuclear war is fundamentally unacceptable to altruists. However, under an extreme imbalance in a nation-state's sacrifice ratio toward individual-level adaptation, a single nuclear strike may be plausible, if not likely.

Like a nuclear strike, acts of terrorism also demonstrate an extreme imbalance of the sacrifice ratio toward individual-level adaptation. In these cases, significant individualistic behaviors induce false altruism in an individual resulting in the notion that his death will benefit the group. Identifying the source and the pathway of the response may prove to be an effective strategy to counter future suicide attacks.⁴² When individual-level adaptations are taken to an extreme, they are no longer acts of war, but rather criminal acts, with responsibility belonging to those who invoked fatal altruistic behaviors from co-opted individuals. Taken to its logical conclusion, this suggests that retaliation to individualistic attacks, such as those of September 11, 2001, should be punitive or legal and should not provoke full altruistic war.

The final insight is that the *Information Age* may well continue to catalyze extreme altruistic behavior among individuals via the Internet and social media. This

insight is supported by the recent use of social media, such as *Facebook* and *Twitter*, which may very well have spurred the popular uprisings in Tunisia, Egypt, and Libya. This insight raises an important question, “What constitutes a group?” In the animal examples, groups are usually genetically coherent family groups or populations or species. But with humans, groups can form a variety of ways (e.g., electronically, religiously, from necessity, etc.). Understanding that these linkages have now transcended geographical boundaries suggests the importance of recognizing the significance of cyberspace as a new commons, no longer constrained by physical geography, that supports both individual-level and altruistic adaptation.

Conclusion

“If I have seen further, it is by standing on the shoulders of giants.”⁴³ Newton’s quote serves as a fitting conclusion to this paper by rightly illustrating that *The Nature of War Theory* pulls from the ground breaking works of Comte, Darwin, Clausewitz, Einstein, Fuller, Jomini, Sun Tzu, Wilson, Wright, and countless other scholars from both the traditional and social sciences. Recognizing its multidisciplinary foundation, the theory argues that war is driven by natural selection – the same process that drives evolution within our species as well as evolution within the entire animal kingdom. By identifying war’s biological driver, it offers the sub-discipline of sociobiology as the common ground through which to host the ongoing debate among traditional and social scientists on the origins of war.

The theory serves to unify other popular theories of war into a greater framework by recognizing that war’s dual nature (traditional and irregular) directly corresponds to the dual nature of natural selection (individual-level and altruistic adaptation). The

significance of this relationship cannot be understated because it implies that traditional and irregular warfare have not historically been reconciled under a single theory of war for the same reason that individual-level and group-level selection have not, until recently, been reconciled under a single theory of natural selection. Fortunately, advances in evolutionary biology have unified competing theories of natural selection, which provide a compelling scientific basis to unify traditional and irregular theories of war within a single overarching theory.

By applying modern multilevel selection research to a number of theories of war, the multidisciplinary research summarized in this paper offers the existence of an overarching paradoxical duality of war that is characterized by the violent and simultaneous interplay of individual-level and group-level adaptations, manifested by individualist and altruistic wars, respectively, and highlighted by trends and insights recognizable to both students of war and evolutionary biology.

Endnotes

¹General Martin Dempsey, "Leadership," lecture, U.S. Army War College, Carlisle Barracks, PA, January 11, 2011.

²Quincy Wright, *A Study of War* (Chicago: The University of Chicago Press, 1965), 48.

³David S. Wilson and Edward O. Wilson, "Evolution for the Good of the Group," *American Scientist* 96, (September/October 2008): 349.

⁴Robert B. Strassler, ed, *The Landmark Thucydides: A Comprehensive Guide to the Peloponnesian War*, 1st ed. (New York: Touchstone, 1996), 43.

⁵Carl von Clausewitz, *On War*, trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 87.

⁶David Galula, *Counterinsurgency Warfare: Theory and Practice* (Westport: Praeger Security International, 1964), 4.

⁷J.F.C. Fuller, *The Foundations of the Science of War* (London: Hutchinson & Co., 1926), 17.

⁸Sun Tzu, *The Art of War*, trans. Samuel B. Griffith (Oxford: Oxford University Press, 1963), 63.

⁹Clausewitz, *On War*, 75.

¹⁰Henri-Antoine Jomini, *The Art of War*, trans. William P. Craighill and George H. Mendell (Barnsley, UK: Greenhill Books, 2006), 13.

¹¹Sun Tzu, *The Art of War*, 63.

¹²Thomas Hobbes, *The Leviathan* (London: Penguin Books, 1987), Chapter 13.

¹³Clausewitz, *On War*, 89.

¹⁴Fuller, *The Foundations of the Science of War*, 66.

¹⁵Richard P. Brennan, *Dictionary of Scientific Literacy* (New York: Wiley, 1992), 213.

¹⁶*Ibid.*

¹⁷Richard P. Brennan, *Dictionary of Scientific Literacy* (New York: Wiley and Sons, 1992), 278.

¹⁸Y.P. Cruz, "A Sterile Defender Morph in a Polyembryonic Hymenopterous Parasite," *Nature* no. 294 (December 1981): 294-295.

¹⁹A. Mosser & C. Packer, "Group Territoriality and the Benefits of Sociality in the African Lion," *Animal Behaviour* (2009): 171.

²⁰Wilson and Wilson, "Evolution for the Good of the Group," 349.

²¹Alexander Shingleton and William Foster, "Ant Tending Influences Soldier Production in Social Aphid," *The Royal Society* (2000): 1863-1868.

²²KJ Gron, "Gelada Baboon (*Theropithecus gelada*) Behavior," *Primate Info Net*. Primate Factsheet no. 3 (September 2008).

²³The idea of sacrifice ratio is comparable to the rational calculus of Clausewitz. The major difference is that the Theory of War defines the competing natural forces within the sacrifice ratio, while Clausewitz leaves these forces poorly characterized as intangible, nonquantifiable "moral factors" that could include the personality, experience, and intuition of leaders; the passions and characteristics of the people; and the training and motivation of the military.

²⁴Wilson and Wilson, "Evolution for the Good of the Group," 349.

²⁵Darwin captured the quixotic relationship between altruistic behavior and individualistic behavior when, in *The Descent of Man*, he wrote the famous passage "It must not be forgotten that although a high standard of morality (altruism) gives but a slight or no advantage to each individual man and his children over the other men of the same tribe... an increase in the number of well-endowed men and an advancement in the standard of morality will certainly give an immense advantage to one tribe over another."

²⁶Wilson and Wilson, "Evolution for the Good of the Group," 349.

²⁷The burgeoning population of young Egyptians who were unemployed along with rising cost of living prices strengthens a Nature of War Theory argument. Egypt, like other nations currently experiencing a youth bulge, hosts a young, disgruntled population who believe their group is being outcompeted by a regime taking selfish individual-level adaptations. This implies that countries with increasing population size would move to become more warlike as well since the individualistic tensions of the youth will mount as the altruistic ability of the government becomes less capable of meeting the demands of the population.

²⁸*Millennium Challenge Home Page*, <http://www.mcc.gov>, (accessed February 11, 2011).

²⁹Westphalian sovereignty is the concept of nation-state sovereignty based on two aspects: territoriality and the absence of a role for external agents in domestic governance. It is characterized by a state's right of political self-determination, legal equity between states, and non-intervention of one state in the internal affairs of another state.

³⁰Clausewitz, *On War*, 89.

³¹Robert B. Strassler, *The Landmark Thucydides*, 111.

³²*Ibid.*

³³Headquarters, U.S. Department of the Army, *Counterinsurgency*, Field Manual 3-24 (Washington, DC: U.S. Department of the Army, December 2006), 1-1.

³⁴Robert McNamara, *In Retrospect*, (New York: Random House, 1995), 323.

³⁵Robert Gates, "United States Military Academy Speech," February 25, 2011, <http://www.defense.gov/speeches/speech.aspx?speechid=1539> (accessed 23 March 2011).

³⁶T.E. Lawrence, *The Seven Pillars of Wisdom: A Triumph* (New York: BN Publishing, 2009), 196.

³⁷Garrett Hardin, "The Tragedy of the Commons," *Science*, Vol. 162, no. 3859 (December 13, 1968): 1243-1248.

³⁸Paul Kennedy, *The Rise and Fall of Great Empires*, (New York: Random House, 1989), xv.

³⁹Edward Gibbon, *The Decline and Fall of the Roman Empire*, vol. 2 (Chicago, William Benton, 1952), 594.

⁴⁰*Ibid.*

⁴¹Michael Howard, "When are Wars Decisive?" *International Institute for Strategic Studies*, no. 41 (Spring 1999): 126-135.

⁴²*Nature Home Page*, http://blogs.nature.com/news/thegreatbeyond/2008/05/epigenetics_and_suicide.html, (accessed January 11th, 2011).

⁴³H.W. Turnbull, J.F. Scott, A.R. Hall, eds., *The Correspondence of Isaac Newton*, 7 vols (Cambridge, Cambridge University Press, 1959), Volume 1, 416.